REMARKS

The present Divisional Application is filled to pursue claims that were restricted in the action of September 13, 1999 (paper 5). The original claims 1-15 are cancelled, and new claims 16- 20 are submitted. No new matter is introduced in these claims, and each finds support in at least the specification and/or an original claim as described below:

Claim 16 is supported by original Claim 12, and in the specification on pages 8-9, lines 26-30 and 1-5.

Claim 17 is supported by original Claim 5, and the specification on page 6, lines 15-18.

Claim 18 is supported by the specification on page 5, line 29.

Claim 19 is supported by original Claim 10, and in the specification on page 5-6.

Claims 20 and 21 is supported by the specification on pages 5-6, lines 30-31 and 1-4.

Claim 22 is supported in the specification on page 6, lines 5-9.

Claim 23 is supported in the specification on page 6, line 8.

Claim 24 is supported in by original Claims 10 and 11.

Claims 17 and 25 are supported by the specification on page 6, lines 20-23, and the inclusion of butyl rubber and halobutyl rubber is supported as follows: page 6, line 14-15 (unsaturated rubbers in the inner layer), cross reference of an "unsaturated rubber" to a "GPR" (general purpose rubber) on page 5, line 19, and the description of butyl rubber and halobutyl rubber on pages 7-8, lines 26-31 and 1-2. It is commonly known in the art that "GPR" rubbers include butyl rubber and halobutyl rubber. See, for example, POLYMER TECHNOLOGY DICTIONARY 171 (Tony Whelan ed., Chapman & Hall 1994) for the definition of "general purpose rubber", copy of which is attached. Also, see page 16, lines 10-13, wherein curing of the blends "for highly unsaturated or chlorobutyl rubbers" is discussed.

Further, as cited on page 5, lines 21-22, THE VANDERBILT RUBBER HANDBOOK, on page 605 (attached), specifically refers to chlorobutyl or bromobutyl as being part of a sidewall blend.

Claims 26 and 27 are based on original Claims 4 and 13.

Claims 28 and 29 are supported in the specification on page 16, lines 5-10.

And Claim 30 is supported by original Claim 2.

New Claim 16 is also based on allowed Claim 9 as amended in the original application. In view of the above it is submitted that the case is in condition for allowance. The applicant invites the Examiner to telephone the undersigned attorney if there are any other issues outstanding which have not been presented to the Examiner's satisfaction.

Respectfully submitted,

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Date

Kevin M. Faulkner
Attorney for Applicants
Registration No. 45,427

ExxonMobil Chemical Company
Law Technology
P.O. Box 2149
Baytown, Texas 77522-2149
Phone: 281-834-2677
Fax: 281-834-2495

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APPLICATION FOR U.S. PATENT

COMPOSITION FOR TIRE SIDEWALLS AND OTHER RUBBER CONSTRUCTIONS

Inventors: Kenneth O. McElrath, Mun Fu Tse, and Andrew L. Tisler

~~This is based on Provisional Applications USSN 60/045,632 filed May 5, 1997, and USSN 60/062,591 filed October 20, 1997~~ The Present application is a Divisional Application of USSN 09/071,105, filed on May 1, 1998, which claims priority to Provisional Applications USSN 60/045,632 filed May 5, 1997, and USSN 60/062,591 filed October 20, 1997.

FIELD OF THE INVENTION

The present invention relates to compositions for making tire sidewalls and other rubber constructions which exhibit improved ozone resistance and fatigue crack propagation resistance, as well as a reduction in staining and discoloration. The composition comprises a blend of halogenated copolymer of isoolefin and para-alkylstyrene of relatively high aromatic comonomer content and relatively low halogen content with general purpose rubbers (GPR) such as butadiene rubber (BR), natural rubber (NR) and/or isoprene rubber (IR). The tire sidewall may comprise a single layer or a veneer construction wherein an outer layer comprises the blend of the halogenated copolymer with one or more general purpose rubbers, and an inner layer can comprise a blend of general purpose rubbers.

BACKGROUND OF THE INVENTION

Rubber tires, such as pneumatic tires, include many components, such as, for example, sidewalls. Sidewalls are continuously subjected to distortion under normal road operating conditions. The sidewalls are subjected to extensive continuous flexing and can crack under such conditions. In addition to flex cracking, sidewalls are also subjected to atmospheric chemical action such as ozone attack. The overall effect is that the sidewalls may erode and degrade. The sidewall may even separate from the tire carcass during use, leading to tire failure.